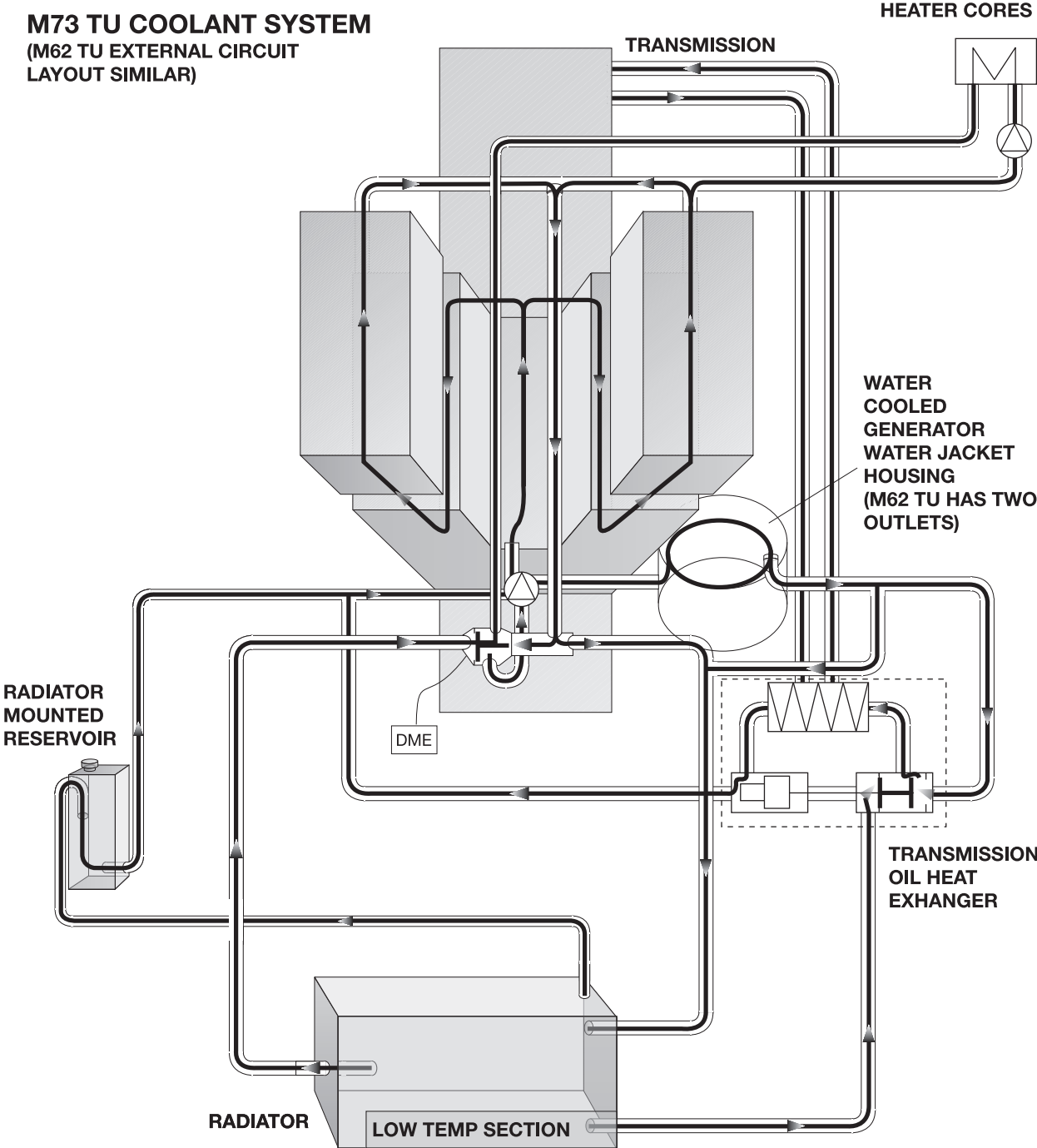


# M73 TU & M62 TU COOLING SYSTEMS

## OVERVIEW

The cooling systems have been changed for the 1999 model year vehicles. The new components consist of a new radiator, coolant expansion tank, transmission fluid heat exchanger, DME controlled coolant thermostat and auxiliary fan.



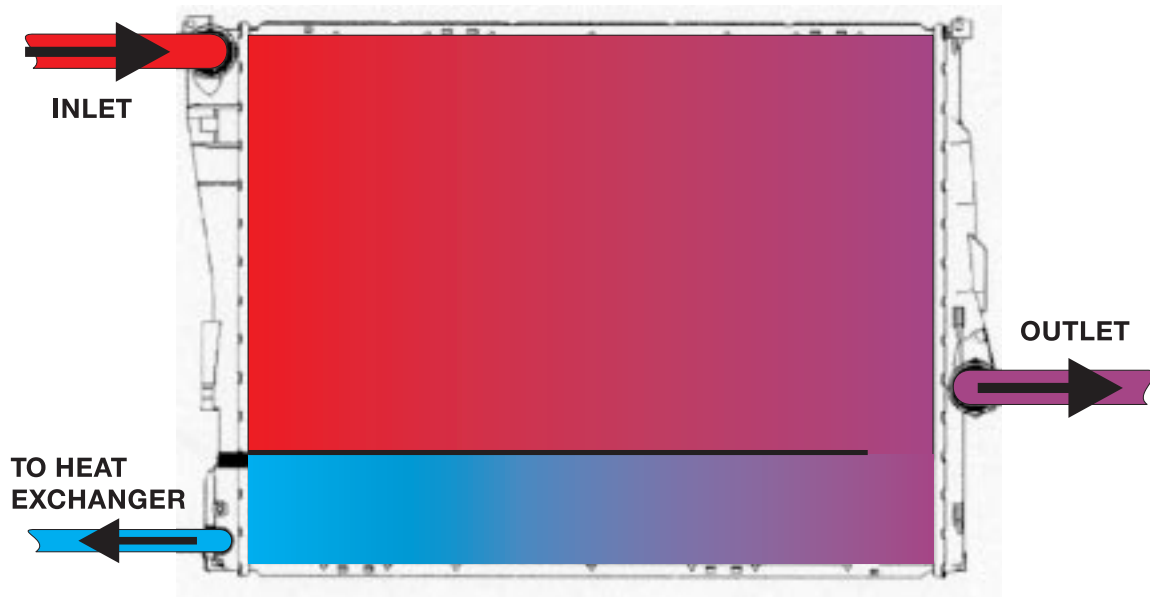
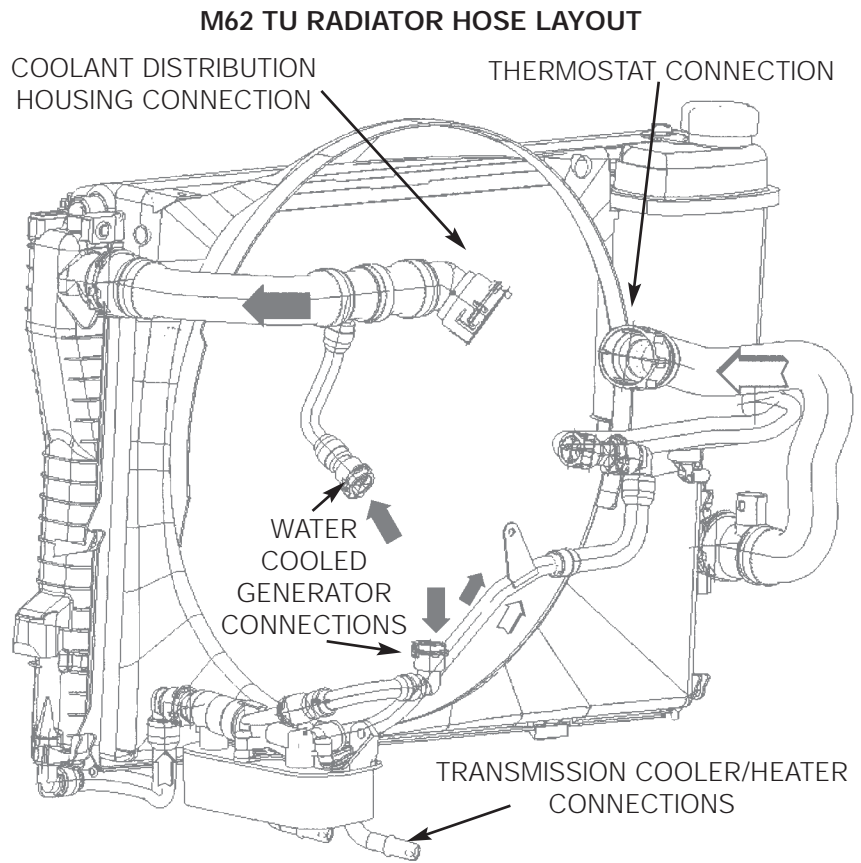
## RADIATOR

The new radiator has a two section cross-flow design.

The main coolant flow is in the upper 4/5 section where the hot engine coolant temperature is reduced and cycled through the system.

The lower 1/5 section is a low temperature residual coolant storage area for the heating and cooling concept (MTK) first introduced on the E46.

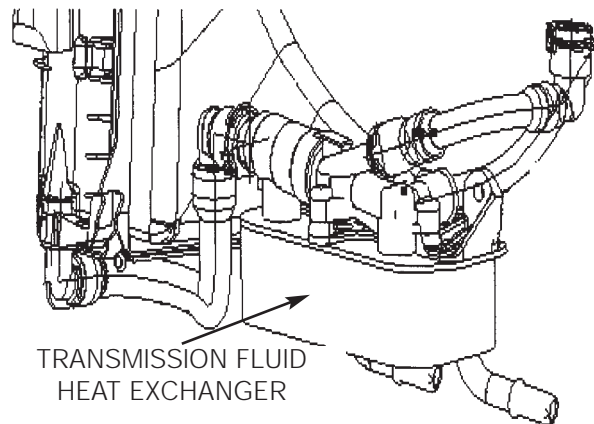
The low temperature coolant is made available to the oil and water heat exchanger on the lower left side of the radiator.



## TRANSMISSION FLUID HEAT EXCHANGER

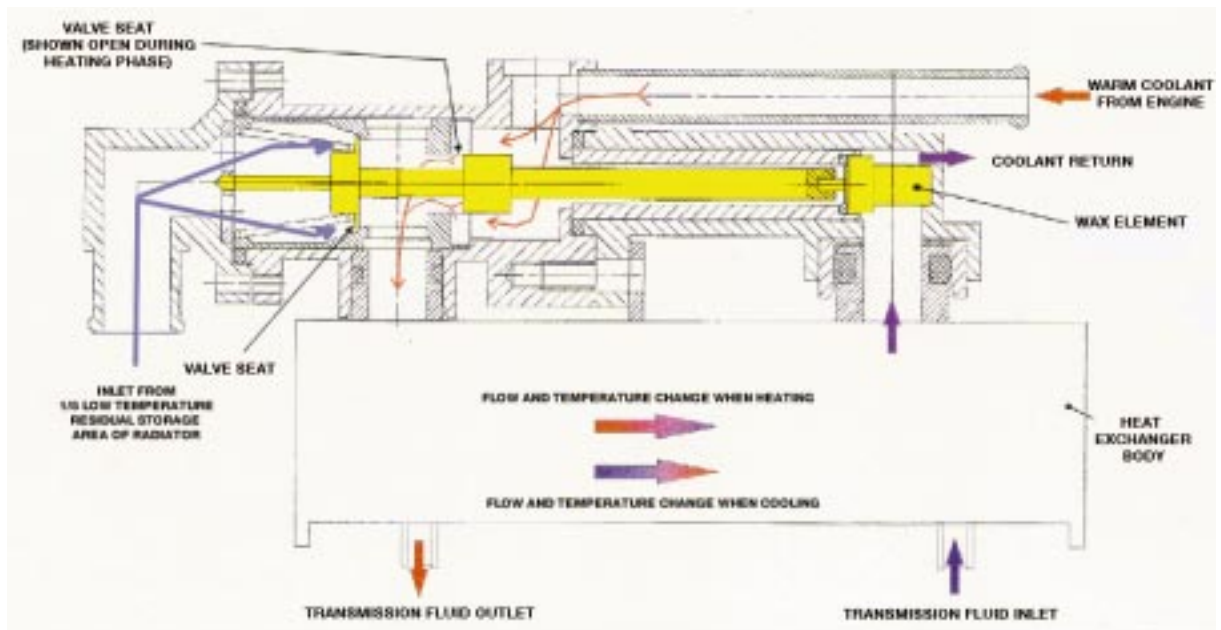
The transmission fluid/engine coolant heat exchanger concept introduced with the M52 TU is now also used on all E38 and E39 vehicles with automatic transmissions.

This system provides a faster warm up of the automatic transmission fluid by heating the fluid through the heat exchanger reducing frictional drag in the transmission faster after cold start. The addition of this component helps to reduce fuel consumption.



On cold engine start-up, the engine's coolant is heated quicker than the automatic transmission fluid.

When the automatic transmission fluid is cold, coolant is guided from the engine (water cooled generator housing) to the heat exchanger. Coolant flow through the heat exchanger is regulated by an integral thermostatically controlled valve. The warm engine coolant heats the transmission fluid through the exchange of heat (illustration depicts transmission fluid warm up).



As the transmission fluid rises to operating temperature the engine coolant temperature also rises which causes the wax core in the integral thermostat to expand and push the regulation valve against spring pressure. This closes the warm coolant port and opens the low temperature coolant port from the residual storage area of the radiator. The temperature change of coolant flow through the heat exchanger continually regulates the temperature of the transmission fluid.